

Mechanical Plating



Mechanical plating can be used to apply zinc, tin or aluminium coatings, either singly or in combination.

It is, essentially, a 'cold welding' concept that applies the coating using mechanical energy, at room temperature, without giving any lasting hydrogen embrittlement.

The components to be coated are placed into a tumbling barrel containing glass beads, reagents and catalysts, which activate and prepare the surface. The coating to be applied is added, in metallic powder form and glass beads of varying sizes 'cold weld' the coating on to the activated surface of the component.

Similar passivates to electroplating are then applied, prior to drying the parts, lubricants may also be added as part of this process.

Mechanical zinc can be used as an undercoat to enhance the performance of organic paint systems.

Mechanical Coating	Salt Spray hrs	
	White Rust	Red Rust
Mech clear	24	72
Mech HW + seal	96	240
Inverplex	120	240
Almac yellow	96	480
Tin Zinc HV + seal	96	500

Advantages-

- No residual hydrogen embrittlement.**
- Uniform coating-galling reduced for threaded components.
- Porous substrates can be coated satisfactorily.
- Ideal for sintered components, which normally require surface preparation to stop ingress of aqueous solutions into pores.
- Cost effective replacement for galvanising, removing

problem of thread shaving to be re-rolled, after coating, to remove excess material.

-It is possible to plate some metal components in a pre-assembled state.

-Low environment impact. Virtually no metal residues are discarded.

**NOTE

Mechanically plated parts can suffer from transient embrittlement if used within 6 hours of coating. Please visit our web site and download the PDF on hydrogen embrittlement on Mechanical plating for further information.

It is not possible to coat very large items in this process since they cannot be tumbled.

Mixed Metal Coatings

Mixed Metal Coatings can be supplied with specific advantages such as ductility or high corrosion resistance, especially under certain environments or in contact with other metals. These include Zinc-Tin, Almac® and Inverplex®.

Inverplex® is a mixed coating of zinc and tin that has better conductivity (and corrosion resistance) than zinc. It may be supplied passivated and is used for earthing screws.

Almac® coatings are combinations of aluminium and zinc which give substantially increased corrosion resistance compared with zinc. They are more ductile than zinc and are very advantageous when used in contact with aluminium.

Testing

It is important that all alloy coatings are supplied with the correct amount of alloying metal, which can now be tested non-destructively using X-ray fluorescence techniques. The equipment also determines thickness to an accuracy of $\pm 5\%$ which is better than any other means of non-destructive testing. The Anochrome Group has XRF equipment to ensure the quality of its production.

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